IN THE CLAIMS

1. (Currently Amended) A method of measuring changes in an apparent depth of the anterior chambera ~~section~~ of an eye, the ~~section~~ anterior chamber being defined by a first interface between the cornea and the aqueous humor of the eye and a second interfaces between the aqueous humor and the ocular lens of the eye, the method comprising the steps of:

a) focusing light to a measurement location proximate or within the eye;

b) scanning the measurement location through the ~~section~~anterior chamber;

c) detecting reflected light from the measurement location as the measurement location passes through the first and the second interfaces and generating a signal representative of the detected light; ~~and~~

d) deriving from the signal apparent positions of the first and the second interfaces and, therefrom, the apparent depth of the anterior chamber~~.~~;

e) comparing the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and

f) calculating a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

2. (Currently Amended) The method of claim 1, wherein ~~the section is the aqueous humor of the eye and the apparent depth is an optical path length through the aqueous humor.~~ the analyte of interest is glucose.

3. (Currently Amended) The method of claim ~~2~~1, wherein ~~the first interface is a surface between the cornea and the aqueous humor of the eye and the second interface is a surface between the aqueous humor and the ocular lens of the eye.~~the analyte of interest is either a naturally occurring or an intentionally introduced substance.

4. (Cancelled)

45. (Currently Amended) The method of claim 24, further comprising the step of calculating a measure of change in a concentration of glucose within the bloodstream of a patient ~~from the change of refractive index~~.

56. (Currently Amended) The method of ~~any preceding~~ claim 1, wherein the detected light is arranged to comprise substantially only light which has been focused to the measurement location and reflected by an interface of the eye.

67. (Currently Amended) The method of ~~any preceding~~ claim 1, wherein scanning step (b) is achieved by one of translating a lens; translating a lens and varying a numerical aperture (NA) of the lens; translating a mirror of a mirror assembly; varying a refractive index of a variable refractive index element; or varying a focal length of a variable focal length lens.

78. (Currently Amended) The method of ~~any preceding~~ claim 1, wherein the signal peaks for points where the measurement location is coincident with an interface of the eye.

89. (Currently Amended) The method of ~~any preceding~~ claim 1, wherein the light has a single wavelength.

910. (Currently Amended) The method of ~~any one of~~ claims 1 ~~to 8~~, wherein the light comprises two or more wavelengths.

101. (Currently Amended) The method of ~~any preceding~~ claim 1, further comprising the prior step of providing a reference image, or object, to be focused by the eye during scanning, so as to enable the eye to be repeatably aligned.

12. (Cancelled)

113. (Currently Amended) An apparatus for measuring changes in an apparent depth of the anterior chamber~~a section~~ of an eye, the ~~section~~anterior chamber being defined by a first interface between the cornea and the aqueous humor of the eye and a second interfaces between the aqueous humor and the ocular lens of the eye, the apparatus comprising:

a) an optical focusing assembly, adapted to focus incident light to a measurement location proximate or within the eye;

b) a scanning assembly, adapted to scan the measurement location through the ~~section~~anterior chamber;

c) a detector, adapted to detect reflected light from the measurement location as the measurement location passes through the first and the second interfaces and adapted to generate a signal representative of the detected light; and

d) a processor, adapted to:

i) derive from the signal apparent positions of the first and the second interfaces~~.~~ and, therefrom, the apparent depth of the anterior chamber;

ii) compare the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and

iii) calculate a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

12~~4~~. (Currently Amended) The apparatus of claim 11~~3~~, the scanning assembly comprising a scanning stage, adapted to translate an element of the optical focussing assembly such that the measurement location is correspondingly scanned, wherein the processor is further adapted to track the translation of the element and thereby derive a position of the measurement location.

15. (Cancelled)

13~~6~~. (Currently Amended) The apparatus of ~~any one of~~ claims 11~~3 to 15~~, wherein the detector is further arranged to detect substantially only light which has been focused to the measurement location and reflected by an interface of the eye.

14~~7~~. (Currently Amended) The apparatus of ~~any one of~~ claims ~~13~~ 11~~to 16~~, wherein the light has a single wavelength.

15~~8~~. (Currently Amended) The apparatus of ~~any one of~~ claims 11~~3 to 16~~, wherein the light comprises two or more wavelengths.

16~~9~~. (Currently Amended) The apparatus of ~~any one of~~ claims 11~~3 to 18~~, further comprising means to display a reference image, or object, for focusing by the eye during scanning, such that the eye may be repeatably aligned.

17~~20~~. (Currently Amended) A method of measuring changes in a property of an eye, comprising the steps of:

a) directing light from a light source to a first reference location;

b) spatially filtering light not received at the first reference location;

c) receiving light from the first reference location and focusing the light to a measurement location;

d) scanning the measurement location along a measurement line within the eye;

e) receiving reflected light from the measurement location and focusing the reflected light to a second reference location;

f) spatially filtering reflected light not received at the second reference location;

g) measuring an intensity of the reflected light received at the second reference location;

h) relating an intensity measurement to an apparent position of the measurement location;

i) selecting intensity measurements of interest, the intensity measurements of interest representing measurement locations of interest; and

j) ~~determining~~ deriving a distance between the measurement locations of interest~~.~~, the distance being an apparent depth of the anterior chamber, the anterior chamber being defined by a first interface between the cornea and the aqueous humor of the eye and a second interface between the aqueous humor and the ocular lens of the eye, the method further comprising the steps of:

k) comparing the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and

l) calculating a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

21 - 23 (Cancelled)

18~~24~~. (Currently Amended) The method of ~~any one of~~ claims 17~~20 to 23~~, wherein the first and second reference locations are coincident.

19~~25~~. (Currently Amended) The method of ~~any one of~~ claims 17~~20 to 24~~, wherein scanning step (d) is achieved by one of translating a lens; translating a lens and varying a numerical aperture (NA) of the lens; translating a mirror of a mirror assembly; varying a refractive index of a variable refractive index element; or varying a focal length of a variable focal length lens.

20~~26~~. (Currently Amended) The method of ~~any one of~~ claims ~~17~~20 ~~to 25~~, further comprising controlling the light such that the light has one of a static, jittered, swept or stepped wavelength.

21~~27~~. (Currently Amended) The method of ~~any one of~~ claims ~~17~~20 ~~to 26~~, further comprising the steps of modulating the light and detecting the phase of the light received at the second reference location.

22~~28~~. (Currently Amended) The method of ~~any one of~~ claims 17~~20 to 27~~, further comprising the step of generating light having two or more wavelengths, such that two or more properties of the eye may be measured.

23~~29~~. (Currently Amended) The method of ~~any one of~~ claims ~~17~~20 ~~to 28~~, further comprising the step of producing light having two or more polarization states, such that two or more properties of the eye may be measured.

24~~30~~. (Currently Amended) The method of ~~any one of~~ claims ~~17~~20 ~~to 29~~, further comprising the steps of:

i) producing a beam of coherent light;

ii) splitting the light beam into a probe beam and a reference beam, such that the probe beam is controlled according to the method of any one of claims 17~~20~~ to 23~~29~~;

iii) interfering the probe beam and the reference beam at a detector; and

iv) measuring a resulting interference pattern.

2531. (Currently Amended) The method of ~~any one of~~ claims 1720 ~~to 30~~, further comprising the step of effecting a reference accommodation of the eye by placing a reference object in a line of sight of the eye.

32 – 33 (Cancelled)

2634. (Currently Amended) An apparatus for measuring changes in a property of an eye, the property being an apparent depth of the anterior chamber defined by a first interface between the cornea and the aqueous humor of the eye and a second interface between the aqueous humor and the ocular lens of the eye, the apparatus comprising:

a light source;

a source optical element, adapted to direct light from the light source to a first reference location;

an objective optical element, adapted to receive light from the first reference location and to focus the light to a measurement location, the objective optical element being further adapted to scan the measurement location along a measurement line within the eye and through the anterior chamber;

a return optical element, adapted to receive reflected light from the measurement location and to focus the reflected light to a second reference location;

an optical detector, adapted to measure an intensity of the reflected light received at the second reference location; and

a processor, adapted to:

i) relate ~~an~~ intensity measurements of interest to ~~an~~ apparent positions of the measurement location, so as to derive the apparent depth of the anterior chamber~~such that an apparent distance between measurement locations of interest, represented by respective intensity measurements of interest, may be derived.~~;

ii) compare the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and

iii) calculate a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

35 – 37 (Cancelled)

2738. (Currently Amended) The apparatus of ~~any one of~~ claims ~~34 to 37~~26, wherein the source optical element comprises one of a lens configuration, an optical fibre, or another light guide structure.

2839. (Currently Amended) The apparatus of ~~any one of~~ claims 26~~34 to 38~~, wherein the first reference location is provided by one of a pinhole aperture, a source-detector combination, an optical fibre, or another light guide structure.

2940. (Currently Amended) The apparatus of ~~any one of~~ claims 26~~34 to 39~~, wherein the objective optical element and/or the return optical element comprises a compound lens.

3041. (Currently Amended) The apparatus of ~~any one of~~ claims 26~~34 to 40~~, wherein the objective optical element and the return optical element are constituted by the same optical element.

3142. (Currently Amended) The apparatus of claim 30~~41~~, wherein the first and second reference locations are coincident.

3243. (Currently Amended) The apparatus of claim 29~~40, and either of claim 41 or claim 42 when dependent upon claim 40~~, further comprising a translation stage, adapted to translate a lens of the compound lens and thereby to scan the measurement location along the measurement line.

3344. (Currently Amended) The apparatus of ~~any one of~~ claims 26~~34 to 43~~, wherein the light source comprises a white light source and one of a spectrometer, an etalon, or a multiplexer.

3445. (Currently Amended) The apparatus of ~~any one of~~ claims 26~~34 to 44~~, further comprising a reference object for viewing by the eye, the reference object being positioned such that an accommodation of the eye may be repeatably achieved.

3546. (Currently Amended) A micro-electromechanical system, comprising the apparatus of ~~any one of~~ claims 1[13 to 19 or 34 to 45].

36. (New) A micro-electromechanical system, comprising the apparatus of claim 26.

3747. (Currently Amended) A hand-held device, comprising the apparatus of ~~any one of~~ claims 1[13 to 19 or 34 to 45 or the micro-electromechanical system of claim 46].

38. (New) A hand-held device, comprising the apparatus of claim 26.

39. (New)A hand-held device, comprising the micro-electromechanical system of claim 35.

40. (New) A hand-held device, comprising the micro-electromechanical system of claim 36.

48 – 49 (Cancelled)

41. (New) A method of measuring an apparent depth of a section of an eye, the section being defined by a first curved interface having a centre of curvature and a second virtual interface located at the centre of curvature of the first interface, the method comprising the steps of:

a) focusing light to a measurement location proximate or within the eye;

b) scanning the measurement location through the section;

c) detecting reflected light from the curved interface when the measurement location is coincident with that curved interface;

d) detecting reflected light from the curved interface when the measurement location is coincident with the centre of curvature of the curved interface;

e) generating a signal representative of the detected light; and

f) deriving from the signal apparent positions of the first and second interfaces such that a distance between the curved interface and its centre of curvature may be derived.

42. (New) A method of measuring an apparent depth of the ocular lens of an eye, the lens being defined by a first interface between the aqueous humor and the ocular lens of the eye and a second interface between the ocular lens and the vitreous humor, the method comprising the steps of:

a) focusing light to a measurement location within the eye;

b) scanning the measurement location through the ocular lens;

c) detecting reflected light from the measurement location as the measurement location passes through the first and the second interfaces and generating a signal representative of the detected light; and

d) deriving from the signal apparent positions of the first and the second interfaces and, therefrom, the apparent depth of the ocular lens.